

## Research Article

# Survey of Spanish Parents of Children Who Are Deaf or Hard of Hearing: Decision-Making Factors Associated With Communication Modality and Bilingualism

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**Purpose:** The purpose of the present study was (a) to describe factors and trends associated with Spanish parents' choice of communication modality and spoken-language bilingualism for children who are deaf or hard of hearing (DHH) and (b) to identify if bilingual variables predict children's bilingual status in a country where bilingualism is common.

**Method:** Seventy-one Spanish parents of children who are DHH completed an online survey that included questions about demographics, family and professional involvement and support, accessibility to information and services, and bilingual background and beliefs. Analyses were completed to describe groups and to examine how variables were associated with parents' decisions.

**Results:** Thirty-eight percent of parents chose to raise their children to be spoken-language bilingual. Most parents indicated that they believed being bilingual was beneficial for their children and that children who are DHH are capable of becoming bilingual in spoken languages. Parent's bilingual score, beliefs about raising children who are DHH bilingually, and encouragement to do so, were significantly associated with children's bilingual status.

**Conclusion:** In communities where bilingualism is common, bilingual parents will often choose to raise children who are DHH bilingual in spoken languages. Implications for practice and future studies in the United States are provided.

**Key Words:** bilingualism, parent survey, communication mode

Following the identification of hearing loss in children, parents are faced with important choices about communication modality. These choices often lead to critically important intervention services that are closely associated with favorable long-term outcomes for children who are deaf or hard of hearing (DHH; Yoshinaga-Itano, 2003). A survey of parents of children who are DHH in the United States revealed that when making these decisions, parents want unbiased information, especially concerning issues of communication and education methodology (Luterman & Kurtzer-White, 1999). A study of parents of children who are DHH in Canada revealed that parents report gaps or lower levels of satisfaction in the availability of information to support decisions and coordination of services (Fitzpatrick, Angus, Durieux-Smith, Graham, & Coyle, 2008). Providing parents with

high-quality information and a full range of options is critically important when assisting parents in making choices about communication and educational approaches (American Speech-Language-Hearing Association [ASHA], 2004).

The increasing presence of culturally and linguistically diverse populations across the United States presents the need to refine clinical practice for these populations. In the United States, 28% of preschool-age children are from households where a language other than English is spoken, with a wide range of languages represented (U.S. Census Bureau, 2008). In the coming years, this growth trend of increased language minorities is expected to continue (Center for Public Education, 2012). The U.S. Census Bureau (2010) projects that 82% of population growth by the year 2050 will be from immigrants and U.S.-born minorities, with Hispanics and Asians representing the fastest growing segments of the population. Guidelines from ASHA (2004) for the audiologic assessment of young children requires that providers apply a family-centered and culturally sensitive approach that advocates full involvement of the family when providing assessment, intervention, and educational services. Audiology and other services provided to culturally and linguistically diverse populations need to be client centered and involve families in a meaningful way so that their

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priorities and preferences can be factored into the decision-making process (Douglas, 2011; Flores, Martin, & Champlin, 1996; Guiberson, 2009; Weber & Guiberson, 2011).

There is limited research describing the experiences of parents from linguistically diverse backgrounds when deciding on communication modality and educational programming for children who are DHH. In a U.S. survey of 29 Spanish-speaking Latino parents of children who are DHH (Steinberg, Delgado, Bain, Ruperto, & Yuelin, 2003), researchers found that the communication modality selected by families tended to follow the recommendations of professionals (i.e., English + sign). However, most families expressed interest in raising their children bilingual in spoken languages. Numerous studies have documented that families are frequently advised by educators, interventionists, and other health professionals that children who are DHH either should not or cannot become bilingual in spoken languages (Francis & Lam Ho, 2003; Guiberson, 2005; McConkey Robbins, Green, & Waltzman, 2004; Waltzman, McConkey Robbins, Green, & Cohen, 2003; Stienberg et al., 2003; Yim, 2011). English is prescribed because intervention and educational services are available in English. These decisions are made in the absence of knowledge about current theories of bilingualism or bilingualism in populations with disorders.

### ***Theoretical Frameworks of Bilingualism***

Theoretical frameworks can be helpful in understanding complex human behaviors such as language learning or bilingualism. The possibility that bilingualism may have a positive effect on language development has been of interest to many researchers studying both typical and disordered populations (for a review, see Paradis, Genesee, & Crago, 2011). Some researchers have called this positive bilingual effect *bilingual bootstrapping*. Bilingual bootstrapping “refers to the idea that a bilingual child’s development in one language can be advanced by the other, dominant language, and/or that the two languages can be mutually advanced by virtue of sharing some linguistic-conceptual knowledge” (Paradis, Genesee, & Crago, 2011, p. 79). Two theoretical frameworks of bilingualism are reviewed in the following section. Both theories present the idea that cross-linguistic influences may have a positive facilitating effect on language development.

***Interdependence hypothesis.*** Cummins (1981) described two models of how language is represented in bilinguals. The separate underlying proficiency (SUP) model posits that languages have separate proficiencies and that content learned in a child’s first language (L1) does not transfer to the child’s second language (L2). The SUP model suggests that using cognitive and perceptual resources to maintain or develop an L2 could take away from the child’s L1 or vice versa. Practitioners who believe in a SUP model of bilingualism are likely to recommend that families choose to teach their children the dominant culture language, despite the fact that there is no evidence to support the SUP model (Cummins, 1981; Roseberry-McKibbin, 2007).

A contrasting view is the common underlying proficiency (CUP) model, which suggests that linguistic

development in an L1 supports linguistic development in L2 and vice versa. According to the CUP model, experiences with either language promote proficiency underlying both languages. Essentially, there is interdependence between languages, so that language development in any language supports general language learning. Practitioners who believe in a CUP model of bilingualism are likely to support children becoming bilingual and will view exposure to an L2 as an asset (Roseberry-McKibbin, 2007). Cummins (1981) found evidence to support the CUP model based on studies of literacy and achievement-related skills (e.g., reading, mathematics, and language skills) in typically developing (TD) children who were enrolled in bilingual instruction. Based on these findings, he developed the *interdependence hypothesis*, stating that effective instruction in a given language ( $L_x$ ) will result in a transfer of linguistic skills to another language ( $L_y$ ), provided there is adequate support for  $L_y$ .

***Interactional dual systems model.*** In a study describing TD bilingual children’s phonological systems, Paradis (2001) defined an *interactional dual systems* (IDS) model, which posits that two interacting language systems exist in bilingual individuals. The IDS model takes into account that children may use resources from both of their languages during linguistic tasks while maintaining adequate separation for language-specific elements. In other words, the dual systems communicate when it is helpful but also are well delineated and defined. Evidence for the IDS model has also been described in studies of lexical and morphosyntactic development in bilingual children, including children with language disorders (for a review, see Goldstein, 2006). Evidence from the IDS model suggests that bilingual children, even those with language disorders, have the capacity to develop well-defined L1 and L2 systems that interact and exist in a symbiotic fashion. Interventionists who believe in the IDS model are likely to support parents in choosing to raise their children bilingually.

### ***Bilingual Development in Populations With Language Disorders***

There is a growing body of research describing bilingual and multilingual language acquisition in children with a wide range of disorders. Numerous studies have documented that children with language disorders, developmental disabilities, and speech disorders are capable of learning two languages (Goldstein, 2004; Kay-Raining Bird et al., 2005; Kohnert, Yim, Nett, Kan, & Duran, 2005; Ohashi et al., 2012; Petersen, Marinova-Todd, & Mirenda, 2012; Restrepo & Gutierrez Clellen, 2004; Restrepo & Kruth, 2000). Children with disabilities may demonstrate limitations in development as a result of their disorder, not as a result of their bilingualism. Children with communication disorders have the capacity to learn two languages, so practitioners and parents should not assume that having two languages is the exclusive domain of TD children (Paradis et al., 2004).

There is emergent evidence that children who are DHH have the capacity to learn two spoken languages. Several case studies have documented that children with cochlear

implants have been able to learn two (Guiberson, 2005) or even three spoken languages (Francis & Lam Ho, 2003). Also, several cohort and retrospective studies have demonstrated that children with cochlear implants who were exposed to two spoken languages demonstrated favorable linguistic outcomes (McConkey Robbins et al., 2004; Mueller, Chiong, Martinez, & Santos, 2004; Thomas, El-Kashlan, & Zwolan, 2008; Waltzman et al., 2003; Yim, 2011).

A recent retrospective study of 56 German children with cochlear implants demonstrated that children who were raised bilingually had speech development comparable to their monolingual peers with cochlear implants (Teschendorf, Arweiler-Harbeck, & Bagus, 2010). In addition, several studies have documented that variability in L2 outcomes in children who are DHH is related to the quantity and quality of exposure to each language (Teschendorf et al., 2010; Waltzman et al., 2003; Yim, 2011). For example, children with access to bilingual or L2 schooling or substantial and consistent L2 input demonstrated more skills in that language than did children who did not receive enriched L2 input. The relationship between language input and variability in bilingual proficiency has also been documented in TD bilingual children (Guiberson, Barrett, Jancosek, & Yoshinaga-Itano, 2006; Paradis et al., 2011; Silva-Corvalan, 1991; Valdes & Figueroa, 1994). This variability should be expected because bilingualism is a continuum with a wide range of language proficiencies that are dynamic and that change over time (Kayser & Guiberson, 2008).

### ***Current Study***

The studies of spoken-language bilingual children who are DHH described above involved a wide range of languages, including English, Spanish, Arabic, French, Marathi, Gujarati, Cantonese, Tagalog, Hebrew, Yiddish, German, Armenian, Russian, Turkish, Kurdish, Polish, Italian, Portuguese, and Mandarin. Collectively, these studies demonstrate that spoken-language bilingualism does not delay or constrain L1 development in children who are DHH. More research is needed to better understand parental decision making about mode of communication for children who are DHH who live in bilingual communities.

At least half of the world's population is bilingual, and bilingualism is present in every country in the world (Grosjean, 1998). Spain is a multilingual country, where Castilian Spanish is spoken in addition to several languages specific to autonomous communities of Spain (e.g., Galician, Catalan, and Basque are spoken by large segments of autonomous communities of Spain). More than one fourth of the Spanish population speaks one of these autonomous community languages as their L1. National census data indicate that 53% of Spanish adults are bilingual or multilingual, speaking both Castilian Spanish and a Spanish autonomous community language or a foreign language (Instituto Nacional de Estadística, 2012). Exact data on the percentage of bilingual children in Spain is not available; however, educational data reveal that between 68% and 100% of elementary school-age children are enrolled in

bilingual education programs in regions of Spain where autonomous community languages are spoken (Baker & Prys Jones, 1998; Cenoz, 1998; Pérez-Vidal, Juan Garau, & Bel, 2008). Indeed, Spain is a country where multilingualism is explicitly valued; the Spanish constitution states that "the wealth of the different language variations in Spain is a cultural heritage that shall be the object of special respect and protection" (Glos, 1979, p. 89).

The current study was conducted with parents of Spanish children who are DHH because of the high percentage of bilinguals in Spain, the multiple regional languages spoken in Spain, and the generally positive view of bilingualism. Professional practices in a multilingual country, in which multilingualism is both common and valued, may shape professionals' attitudes about bilingualism, and this will likely influence professionals' support of spoken-language bilingual options for children who are DHH. The purpose of the current study was to describe factors and trends related to Spanish parents' choice of communication modality and spoken-language bilingualism for children who are DHH. Factors included family involvement and support, professional involvement and support, accessibility to information and services in deciding communication modality, and bilingual background and beliefs about bilingualism. Bilingual variables were hypothesized to be related to child's spoken-language bilingual status in the following ways:

- The parents' bilingual status will be positively and significantly associated with the child's bilingual status.
- The parents' beliefs about bilingualism and beliefs about raising children who are DHH spoken-language bilingual will be both positively and significantly associated with their child's bilingual status.
- Encouragement to raise a child bilingual will be positively and significantly associated with the child's bilingual status, and discouragement will be negatively and significantly associated with the child's bilingual status.

The results of this survey will provide audiologists and other professionals with insight about international practices and factors that play into decisions regarding spoken-language bilingualism for children who are DHH. The results from this study will also be useful for practitioners in the United States, where linguistic minorities are a fast-growing segment of the population.

## **Method**

### ***Survey***

A survey instrument was developed to collect data, including information about children's age, hearing loss, and use of assistive devices as well as basic family background information. The survey was designed so that parents could share information about their experiences and factors associated with communication modality decisions and bilingualism. The survey contained questions related to four areas: (a) family involvement and supportiveness, (b) professional involvement and supportiveness, (c) accessibility

to information and services, and (d) bilingual variables. Questions about family and professional involvement were based on two earlier studies of parental decision making and choices (Li, Bain, & Steinberg, 2003; Steinberg et al., 2003). These questions were used in order to obtain details about who was the most involved and supportive during the decision-making process. Questions about accessibility to information were designed to obtain details about parents' level of effort in obtaining information and their satisfaction with the range of options available. Accessibility to service questions were included in order to gather information about the importance of the accessibility and cost of services in relation to communication mode decisions. Also, several items from a Spanish parent survey of language development were used in order to gather detailed information about child and family bilingual status and parental beliefs about bilingualism (Guiberson et al., 2006; Guiberson & Rodriguez, 2010).

A professional interpreter who was fluent in peninsula Spanish and English was employed to translate the survey items from English to Spanish. Two Spanish health care professionals as well as two parents from Spain of children who are DHH then reviewed the survey for clarity, and minor adjustments were made. The survey questions included yes-no, multiple-choice, Likert-type scale responses, and some open-ended questions. Survey questions pertinent to the current study are provided in English in the Appendix. Additional questions that are not part of the current study, including open-ended and qualitative questions, were collected on behalf of a collaborator in Spain.

## **Participants**

Spanish parents of children who are DHH were recruited through multiple methods. Four Spanish parent groups were contacted and were encouraged to notify members about the study. In addition, two Spanish organizations for DHH individuals as well as a Spanish national disability resource center were provided information about the study. Two schools with varied programs for children who are DHH also agreed to share information with parents about the study. A web link to a letter of invitation to the study was provided to groups and programs that agreed to announce the study.

## **Procedure**

The letter of invitation included a brief description of the study and indicated that participation in the study was voluntary and anonymous. If parents consented to participate in the study, they were instructed to click on an electronic link that would take them to an encrypted website that was accessible by invitation only. Prospective participants had access to the electronic survey for ~4 months. Each question was presented individually, except in the cases where questions required multiple responses. Participants could skip any of the survey questions or parts of questions and were able to terminate participation at any point simply by closing out of the survey. To advance to the next

question, participants clicked an arrow at the bottom of the screen; they also were allowed to click a back arrow to return to previous questions. Question logic was applied so if participants responded in a way that indicated that a set of questions did not apply to their situation, they were not presented with those questions. The survey took an estimated 15–25 min to complete. At the end of the 4-month data collection window, the researcher deactivated the survey link.

## **Data Analysis**

After the survey was deactivated, the results were downloaded into an SPSS file for analysis. The downloaded file included participants' coded responses for each survey item. As a first step, basic descriptive information (e.g., autonomous region of origin, child characteristics) was reviewed and percentages were calculated. Additional percentages were calculated to describe the entire sample and communication mode groups in terms of hearing loss, use of listening devices, and bilingual status. For the variables of family involvement and support, professional involvement and support, and accessibility, aggregate variables were formed for each and communication mode groups were compared using a Kruskal-Wallis one-way analysis of variance (ANOVA). Central tendency coefficients were calculated for the bilingual variables, and a Spearman ranked correlation was completed in order to describe the inter-relatedness of these variables. Finally, logistic regression was completed to identify if a combination of bilingual variables would significantly predict children's spoken-language bilingual status.

## **Results**

### **Characteristics of Parents**

Seventy-one parents from Spain completed the survey anonymously. The total number of responses varied by questions from 17 to 71. Participating families were from 13 of the 17 different autonomous communities of Spain (see Table 1), with 40% from the autonomous community of Madrid, and 24% from regions where a large segment of the population speaks an autonomous community language (e.g., Galicia, the Basque Country, Catalonia, and Valencia).

### **Characteristics of Children**

Table 2 summarizes the characteristics (e.g., gender, age, hearing loss, etc.) of the children. Most children had severe-to-profound hearing loss. At the time of the survey, 69% had received a cochlear implant, and 32% had received a second implant. Fifty-six percent of the parents selected an oral-only mode of communication for their child, 24% selected an oral + sign mode, and 20% selected cued speech. Twenty-seven percent of the parents indicated that their child had another area of disability.



**Table 1.** Tally of study participants' autonomous community of origin.

Community of origin	Number of participants
Madrid	28
Galicia	7
Basque Country	6
Ceuta	6
Andalucía	4
Castile and Leon	4
Navarra	4
Murcia	3
Valencia	3
Aragon	2
Asturias	1
Catalonia	1
La Mancha	1

Note.  $N = 70$ . One family did not indicate where they live.

### Mode of Communication Group Characteristics

Table 3 presents detailed information by communication modality groups as well as for the entire sample. Children with profound and severe hearing loss were approximately equally represented in each group (i.e., oral only, oral + sign, and cued speech). A higher percentage of children who were in the cued speech group had bilateral cochlear implants. In terms of spoken-language bilingualism,

**Table 2.** Child characteristics ( $N = 71$ ).

Variable	Percentage
Gender	
Male	58
Female	42
Age (in years)	
$\leq 5$	44
6–10	26
11–18	30
Age hearing loss confirmed	$M = 1.33$ years $SD = 1.09$ years
Device usage	
Uses hearing aid(s)	49
Has a cochlear implant	69
Has a second cochlear implant	32
Extent of hearing loss	
Profound ( $\geq 91$ dB)	63
Severe (71–90 dB)	21
Moderately severe (56–70 dB)	9
Moderate (41–55 dB)	7
Mode of communication	
Oral only	56
Oral and Sign	24
Cued speech	20
Other disability	27
Other family members with hearing loss	21

Note. Age at which hearing loss was confirmed is reported in years; all other data are reported as percentages (rounded to nearest full integer).

38% of the total sample was spoken-language bilingual, with a higher percentage represented in the oral + sign group and a lower percentage represented in the cued speech group; however, this difference was not significant ( $p = .57$ ).

### Decision-Making Factors

As a first step of analyzing decision-making factors, visual inspection and description was completed with each set of variables (i.e., family involvement and supportiveness; professional involvement and supportiveness; and importance of accessibility to information and services). Next, related variables were combined into aggregate variables so that communication group comparisons could be completed. Each set of variables is described in the following sections. Finally, a Kruskal-Wallis one-way ANOVA was completed to make comparisons by communication modality groups.

**Family involvement and supportiveness.** Across groups, parents reported that spouses/partners and the child's grandparents were the most supportive and the most involved in the decision-making process. Other family members, friends, and other families of children who are DHH were less involved and were reported as providing less support in the decision-making process. Possible scores for the family involvement and supportiveness aggregate variable ranged from 0 to 56, with higher scores representing more involvement and supportiveness. No significant differences in family involvement and supportiveness were detected across groups (see Table 4).

**Professional involvement and supportiveness.** Parents reported that speech-language pathologists (SLPs) were the most supportive and the most involved in the decision-making process. Audiologists and deaf educators/special educators were also reported as highly involved and supportive of the decision-making process. Otolaryngologists, teachers, and principals were also reported as being somewhat involved and providing support. General physicians/pediatricians and counselors were reported as less involved and as providing less support. Possible scores for the professional involvement and supportiveness aggregate variable ranged from 0 to 64. No significant differences in professional involvement and supportiveness were detected across groups (see Table 4).

**Accessibility to information and services.** Forty-nine percent of parents indicated that they had to work hard to obtain information about options for their children, and 54% reported that they wished professionals had provided more options for their child. Seventy-one percent of parents indicated that the type of services provided in school settings was an important–very important factor when making communication mode decisions. Moreover, 40% of parents indicated that availability of services close to home was an important–very important factor. Possible scores for the accessibility to information and services aggregate variable ranged from 0 to 28. The cued speech group rated more importance to the accessibility to information and services than the other two groups; this difference was significant ( $p < .05$ ; see Table 4).

**Table 3.** Hearing loss, device usage, and spoken-language bilingual status for the entire sample as well as by communication modality groups.

Variable	Total sample (N = 71)	Oral only (n = 40)	Oral + sign (n = 17)	Cued speech (n = 14)
Extent of hearing loss				
Profound ( $\geq 91$ dB)	63%	60%	65%	69%
Severe (71–90 dB)	21%	22.5%	23%	23%
Moderately severe (56–70 dB)	9%	7.5%	12%	8%
Moderate (41–55 dB)	7%	10%	0%	0%
Device usage				
Uses hearing aid(s)	48%	48%	63%	36%
Has a cochlear implant	69%	75%	75%	77%
Has a second cochlear implant	32%	33%	12%	59%
Spoken-language bilingual	38%	38%	47%	29%

Note. Data are given as percentages (rounded to nearest full integer).

### Bilingual Variables

Parents responded to a number of questions concerning the following factors: family bilingual status and characteristics, parental beliefs about bilingualism, and encouragement or discouragement related to raising their child spoken-language bilingual. The data reported below are from the entire sample ( $N = 71$ ) unless otherwise stated.

**Family bilingual status and characteristics.** Thirty-eight percent ( $n = 27$ ) of the families had at least one parent who was bilingual. Of these parents, eight spoke a Spanish autonomous community language and 19 spoke a foreign language (including English, French, German, Dutch, and Italian). Thirty-eight percent ( $n = 27$ ) of the children who are DHH were spoken-language bilingual. Of these children, 12 spoke a Spanish autonomous community language and 15 spoke a foreign language (including English, French, and German). Of the 27 bilingual parents, 16 decided to raise their child spoken-language bilingual, and these children spoke both foreign languages ( $n = 10$ ) and Spanish autonomous community languages ( $n = 6$ ).

**Parental beliefs about bilingualism.** Parents' beliefs about raising children bilingually were uniform;  $>80\%$  of the parents indicated that they believed that children receive a better education when they learn in two languages; that it is natural for children to speak a second language; and that children who are bilingual will have better job opportunities

as adults. More than 70% of parents indicated that they believed children who are DHH have the capacity to develop skills in two spoken languages, and they did not believe that being spoken-language bilingual was too great of a challenge or would result in confusion for children who are DHH.

**Encouragement or discouragement to raise child spoken-language bilingual.** Fifty percent of parents reported that someone had encouraged them to raise their DHH child spoken-language bilingual, whereas 36% reported that someone had discouraged them from raising their DHH child spoken-language bilingual.

**Aggregate bilingual variables.** In order to complete additional analyses, variables were combined to create the following aggregate variables: child's bilingual score, parents' bilingual score, parents' beliefs about raising children spoken-language bilingual, and parents' beliefs about raising children who are DHH spoken-language bilingual. Child bilingual scores ranged from 0 to 3 and included responses to "Does your child understand two oral languages?" "Does your child understand and speak two oral languages?" and "Is your child able to communicate effectively in two oral languages?" Parents' bilingual scores ranged from 0 to 4 and included responses to "Is the child's mother/father bilingual?" and "Was the child's mother/father enrolled in bilingual education for five or more years?" Parents' beliefs about bilingualism was gathered through parents' ratings of three statements: "Children receive a better education when

**Table 4.** Total and group means and standard deviations for three aggregate decision-making variables as well as  $p$  values obtained from a Kruskal-Wallis one-way analysis of variance.

Variable	Total sample		Oral only		Oral + sign		Cued speech		$p$ value (test of group difference)
	$M$	$M_{\text{group}}$	$M$	$M_{\text{group}}$	$M$	$M_{\text{group}}$	$M$	$M_{\text{group}}$	
Family involvement and supportiveness (0–56)	29.55	11.71	27.89	11.95	32.20	7.22	28.00	13.66	.10
Professional involvement and supportiveness (0–64)	27.72	15.78	27.26	15.39	32.00	17.30	24.36	15.32	.41
Accessibility to information and services (0–28)	14.85	5.01	14.37	4.38	13.40	7.04	17.71	3.15	.04*

\* $p = < .05$ .

they learn in two languages,” “It is natural for children to speak a second language,” and “Children who are bilingual will have better job opportunities as adults.”

Parents’ beliefs about raising children who are DHH spoken-language bilingual was gathered through parents ratings of three statements: “Children who are deaf or hard of hearing have the capacity to develop skills in two oral languages,” “Children who are deaf or hard of hearing will be confused by being exposed to two oral languages,” and “Learning two oral languages is too great of a challenge for children who are deaf hard of hearing.” Categorical responses for these variables were coded so that higher values indicated stronger beliefs that children who are DHH are capable of becoming spoken-language bilingual. Possible scores for beliefs about bilingualism and beliefs about raising children who are DHH spoken-language bilingual ranged from 0 to 12, with higher values indicating more positive beliefs about bilingualism. Parents also answered questions that indicated if they were encouraged or discouraged when considering raising their children spoken-language bilingual. Possible values ranged from 0 to 16 for both of these variables. Central tendency coefficients for these variables are presented in Table 5.

In order to understand how aggregate bilingual variables were associated with one another, and how these variables were associated with the children’s degree of hearing loss, cochlear implant status, and age, Spearman’s ranked correlations were completed (see Table 6). Degree of hearing loss, cochlear implant status, and age were not significantly associated with the child’s bilingual score. The results indicated that the children’s bilingual scores were significantly associated with the parents’ bilingual status ( $r_s = .38, p < .01$ ); beliefs about raising children who are DHH spoken-language bilingual ( $r_s = .49, p < .01$ ); and encouragement to raise child spoken-language bilingual ( $r_s = .46, p < .01$ ). Parents’ beliefs about bilingualism and discouragement from raising child spoken-language bilingual were not associated with child’s bilingual score.

Logistic regression was completed to identify if the aggregate bilingual variables (parents’ bilingual score, parents’ beliefs about raising children who are DHH spoken-language bilingual, and encouragement to raise children spoken-language bilingual) significantly predicted the child’s spoken-language bilingual status. Of the 71 participants, nine did not complete the parents’ beliefs about raising children who are DHH questions, and thus were not included in the

model. Sixty-two participants remained, which is adequate for logistic regression including three variables (Leech, Barrett, & Morgan, 2005). When all three variables were considered together, they significantly predicted child’s bilingual status ( $\chi^2 = 22.27, df = 3, N = 59, p < .001$ ). The variables in the model accounted for ~41% of variance in child bilingual status.

## Discussion

The primary aim of this study was to describe factors and trends related to parents’ choice of communication modality and spoken-language bilingualism for children who are DHH. It is important to note that cultural values and service delivery models in Spain differ from those in other countries, such as the United States, and these differences should be kept in mind when interpreting the results from this study.

### Involvement and Supportiveness

In terms of family involvement and support of communication mode decision making, the results indicated that spouses/partners and the child’s grandparents were the most supportive and the most involved in the decision-making process. These results are similar to results obtained from Latino families living in the United States (Steinberg et al., 2003). In terms of professional support and involvement, parents indicated that the highest level of support and involvement was from SLPs, audiologists, and deaf/special educators. These results differ from the study of U.S. Latino families in that the latter relied more on family doctors for support and involvement in decision making. This difference may be a result of different levels of parent education. The sample for the current study included highly educated parents, with 48% of mothers and 49% of fathers having a bachelor’s-level degree or higher, whereas in the U.S. Latino sample, 3% of the mothers and none of the fathers reported having a college degree (Steinberg et al., 2003). These differences may be important because more educated parents may have a better understanding of resources and access to professionals who can assist in important medical and educational decisions. Parents who are able to seek out and receive professional input from SLPs and audiologists may have a stronger influence on their child’s intervention and educational planning, which ultimately leads to more

**Table 5.** Central tendency coefficients for the bilingual variables.

Variable	Mean	Median	Mode
Child’s bilingual score (0–3)	.66	0	0
Parents’ bilingual score (0–4)	.59	0	0
Parent’s beliefs about bilingualism (0–12) ( $N = 64$ )	10.30	11	12
Parent’s beliefs about raising DHH children spoken-language bilingual (0–12) ( $N = 62$ )	9.47	10	12
Parent was encouraged to raise DHH child bilingually (0–16)	.92	0	0
Parent was discouraged from raising DHH child bilingually (0–16)	2.23	0	0

Note.  $N = 71$  for all values except where noted.

**Table 6.** Spearman ranked correlations between aggregate bilingual variables as well as child's degree of hearing loss, cochlear implant status, and age.

Measure	1	2	3	4	5	6	7	8
1. Child's bilingual score	—							
2. Parents' bilingual score	.38**	—						
3. Parents' beliefs about bilingualism	.17	.09	—					
4. Parents beliefs about raising DHH children orally bilingual (N = 64)	.49**	.32*	.39**	—				
5. Encouragement to raise child spoken-language bilingual (N = 62)	.46**	.33**	.25*	.55**	—			
6. Discouragement to raise child orally bilingual	.21	.09	.22	.20	.24*	—		
7. Degree of hearing loss	.17	.07	.07	.25*	.09	.25*	—	
8. Cochlear implant status	.18	.02	.02	.09	.12	.32*	.78**	—
9. Age of child	.03	-.19	-.06	.15	-.13	.05	-.02	.18

Note. N = 71 for all values except where noted.

\* $p < .05$ , \*\* $p < .01$ .

favorable developmental outcomes. Spanish-speaking Latino families in the United States do have access to early intervention and other special education services as mandated by federal law (Individuals with Disabilities Education Act, 1997, 2004), but parental level of education and educational experiences may influence how effectively these families are able to navigate U.S. early intervention and educational systems (Guiberson, 2009; Moore, Pérez-Méndez, & Boerger, 2006).

It is important to note that other factors may also be playing a role in how parents access professionals in the United States and Spain. First, there is the possibility that families might prefer the advice of physicians when/if they select cochlear implant options for their child. Second, there are unique challenges to service delivery to families who are culturally and linguistically diverse in the United States, including challenges in breaking down the language barrier between families and practitioners and challenges in providing culturally sensitive services (Abreu, Adriatico, & DePierro, 2011; ASHA, 2005). In 2011, 4.2% of audiologists and 4.5% of SLPs in the United States reported that they were bilingual (in any two languages), and 2.6% reported that they were Spanish-English bilingual. Meanwhile, it is estimated that 20.0% of families in the United States speak a language other than English as their primary language at home, and 12.8% of families speak Spanish in the home (ASHA, 2012). This clinician-client mismatch is thought to result in substantial challenges in service delivery for families that are linguistically diverse (Abreu et al., 2011). Even so, guidelines for the audiologic evaluation of young children state that the principles of cultural competence and knowledge about cultural and linguistic diversity are necessary for practitioners to effectively design assessment, intervention, and educational services (ASHA, 2004). Results from the current study viewed with this information indicate the need for additional studies describing parent choices and professional practices with linguistically diverse populations in the United States.

### *Accessibility to Information and Services*

Significant group differences were observed in how parents rated the importance of accessibility to information and services when deciding communication modality. Parents who selected cued speech for their children rated access variables as more important than the oral-only or oral + sign groups. These findings may be a result of the fact that cued speech programming requires access to very specific interventions and educational programming. Unlike sign languages or oral languages, cued speech is not a language in itself; rather, it is a systematic cuing system that is used by interventionists and educators. In order to benefit from a cued speech approach, a child would need to be consistently exposed to this intervention. This may explain why parents who chose cued speech for their children rated accessibility to information and services as more important in the decision-making process than the other groups of parents.

### *Bilingual Variables*

This study sought to describe factors and trends related to parents' choice of spoken-language bilingualism for children who are DHH and to identify if bilingual variables predicted children's bilingual status in a country where bilingualism is common. The parents' bilingual status, parents' beliefs about raising children who are DHH spoken-language bilingual, and encouragement to raise children bilingually were positively and significantly associated with the child's bilingual score. However, parent's beliefs about bilingualism and discouragement from raising children spoken-language bilingual were not associated with the child's bilingual score. More than 80% of the sample indicated that they believed that bilingualism was natural and beneficial for children, yet this belief did not appear to be related to parents' decisions to raise children who are DHH spoken-language bilingual. The specific belief that children who are DHH are capable of learning two spoken languages appears to be more closely related to the spoken-language



bilingualism decision for parents of children who are DHH. Although discouragement from raising children bilingually was not associated with parents' decisions, it was striking that 36% of the parents indicated that they were discouraged from spoken-language bilingual options for children who are DHH. The multilingual characteristics of Spain and the general positive climate for bilingualism would lead one to believe that bilingualism would be viewed favorably for all children, including children with disabilities.

Interestingly, most parents indicated that they believed bilingualism was beneficial and that children who are DHH are capable of becoming spoken-language bilingual, yet only 38% chose to raise their children spoken-language bilingual. Furthermore, 50% of the families received encouragement to raise their DHH child spoken-language bilingual. It is not clear why more of the parents in the current study did not select bilingual options for their children, but several factors may have influenced the parents' choices. Roughly one third of the children had a parent who was bilingual; this is lower than the national average for adults (53% of Spanish adults are bilingual). The sample's lower than national average adult bilingual status and decision to raise children monolingual may be an artifact of the disproportionate number of participants from the autonomous community of Madrid (40%) versus the relatively smaller proportion of participants from regions where autonomous community languages are spoken. The autonomous community of Madrid is the most populous in Spain, but there also is a large segment of the Spanish population residing in Catalonia and Valencia, where Catalan is spoken. The sample for the current study had a relatively small number of participants from these regions of Spain.

Given the larger percentage of parents who were monolingual and who were from regions where autonomous community languages are not spoken, one may wonder how 38% of the families found options to raise their children spoken-language bilingual. Children in the current study spoke both foreign languages and Spanish autonomous community languages. Bilingual education options in Spanish autonomous community languages as well as English and other foreign languages are becoming widely accessible in Spain (Pérez-Vidal et al., 2008), which may explain how monolingual parents were able to opt for bilingual options for their children who are DHH. However, information on bilingual education factors was not gathered in the current study. The influence that bilingual education options may have on parents' decisions about bilingualism needs to be described in future studies.

A second aim of the study was to determine if a combination of bilingual variables predicted children's bilingual status in a country where bilingualism is common. Parents' bilingual score, parents' beliefs about raising children who are DHH spoken-language bilingual, and encouragement to raise children spoken-language bilingual significantly predicted the child's spoken-language bilingual status. These findings indicate that bilingual parents in Spain will often choose to raise children spoken-language bilingual when they are supported in their belief that

children who are DHH can learn multiple spoken languages.

There are limited data available to compare parents' choices in Spain to those of Spanish-speaking parents in the United States. Steinberg et al. (2003) reported that 17% of their sample of children who were DHH used Spanish in the home with their parents and families. This study also reported that parents expressed a strong desire for their children who are DHH to learn and retain Spanish but were discouraged by professionals who tended to recommend a single spoken language (English) or English + sign approach. A higher percentage of spoken-language bilingual children who are DHH was observed in the current study, as well as more support from families and professionals to raise children spoken-language bilingual. These results indicate the need for further research regarding parental experiences, beliefs about bilingualism, and related decisions for children who are DHH in the United States.

### *Study Limitations*

Several methodological limitations of the current study warrant comment. First, no behavioral measures were collected from children to document parents' report of spoken-language bilingualism. Although behavioral measures may have provided a fuller picture of children's linguistic skills across languages, the goal of this research was to describe factors and trends related to Spanish parents' decisions about mode of communication and spoken-language bilingualism for their children who are DHH. In addition, there is a large body of research documenting that when surveys are used with English and Spanish-speaking parents of children who are DHH or children with other disabilities, parents provide valid and accurate developmental information (Fenson et al., 2007; Guiberson & Rodríguez, 2010; Jackson-Maldonado, Thal, Marchman, Bates, & Gutierrez-Clellen, 1993; Nathani, Oller, Neal, 2007; Restrepo, 1998; Yoder, Warren, & Abbeduto, 2004). Nonetheless, it would be beneficial to collect behavioral measures to confirm the children's bilingual status and abilities.

Another limitation is that the current study did not include information on bilingual education. Collecting information about bilingual education would have been helpful in order to understand if availability and access to bilingual education influenced parent's mode of communication and bilingualism decisions. A final limitation of this study is the relatively small sample size. A larger sample with a larger proportion of participants from all regions of Spain, including a larger representation of participants from Catalonia and other regions where Spanish autonomous community languages are used, may have provided a fuller picture of parental experiences across Spain.

### *Conclusion*

The current study was conducted in Spain, which is a linguistically rich nation where several linguistic communities thrive. Findings from this study indicate that in contexts

where bilingualism is a norm rather than an exception, and where bilingualism is supported, bilingual parents of children who are DHH are likely to raise their children spoken-language bilingual. Parents in the current study reported that they wished more communication mode options had been presented to them. A restricted range of options has also been a problem for families in the United States; numerous studies have recounted that parents in the United States have frequently been discouraged from raising their children who are DHH spoken-language bilingual.

These findings have implications for practitioners working with families of children who are DHH from bilingual backgrounds, or families that may be interested in bilingual schooling options. The finding that a sizable portion of the parents from the current study decided on spoken-language bilingualism, plus findings from earlier studies documenting that children who are DHH are capable of becoming spoken-language bilingual, provide support for presenting spoken-language bilingualism as an option when discussing communication mode options with parents (Francis & Lam Ho, 2003; Guiberson, 2005; McConkey Robbins et al., 2004; Mueller et al., 2004; Teschendorf & Arweiler-Harbeck, 2010; Thomas et al., 2008; Waltzman et al., 2003; Yim, 2011). Given the current demographic trends and projected increase of cultural and linguistic diversity in the U.S. population, spoken-language bilingualism is an important option that needs to be presented to families so they can continue to parent and teach their children and so that cultural values and experiences can be preserved and maintained (Banerjee & Guiberson, 2012; Perez-Mendez & Moore, 2005).

When comparing the decision-making factors of the current study and that of a study of Latino parents in the United States (Steinberg et al., 2003), differences were observed in that the families from Spain accessed and used information from medical and educational specialists to make their decision whereas families in the United States relied more on physicians. As stated earlier, this may be related to parental level of education and knowledge and limited experiences with speech-language, audiology, and other specialists who can provide crucial information that assists in decision making. However, further research is needed that describes how parent education, parental beliefs about bilingualism, and other factors may influence parents' decisions for children who are DHH in the United States. Practitioners working with communities that may have lower educational backgrounds, especially linguistic minorities, may need to make more of an effort to build collaborative relationships with these families as well as to educate families about professional roles and the availability of services.

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### Family Background

Please indicate where you and your child live:

Country:

City:

Autonomous Community:

Is there a family history of hearing loss?

☐ yes (indicate who) \_\_\_\_\_

☐ no

Is the child's **mother bilingual**?

☐ yes (indicate languages) \_\_\_\_\_

☐ no

Was the child's **mother** enrolled in 5 or more years of bilingual education, where topics were taught in both languages?

☐ yes

☐ no

Indicate the **mother's** highest level of education.

☐ 8 years or less

☐ 9–12 years

☐ High school or equivalent

☐ technical or vocational 2–3 year program

☐ 4–5 year university degree

☐ masters or doctorate degree

Is the child's **father bilingual**?

☐ yes (indicate languages) \_\_\_\_\_

☐ no

Was the child's **father** enrolled in 5 or more years of bilingual education, where topics were taught in both languages?

☐ yes

☐ no

Indicate the **father's** highest level of education.

☐ 8 years or less

☐ 9–12 years

☐ High school or equivalent

☐ technical or vocational 2–3 year program

☐ 4–5 year university degree

☐ masters or doctorate degree

What level of income range best describes your family's income?

☐ Lower income range

☐ Middle income range

☐ Higher Income range

### Background Information About Your Child

Child's age: \_\_\_\_

Child's gender

☐ Boy

☐ Girl

At what age was your child's hearing loss **confirmed**? \_\_\_\_

What is the extent of your child's hearing loss, in terms of unaided hearing loss?

☐ profound (hears only loud noises, even with hearing aid: 91 dB plus)

☐ severe (can tell different kinds of noises: 71–90 dB)

☐ moderately severe (can hear speech in a quiet room with hearing aid: 56–70 dB)

☐ moderate (can hear in most situations with hearing aid: 41–55 dB)

☐ mild (responds like a hearing child when aid is worn: 27–40 dB)

☐ don't know



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**Appendix** (p. 2 of 4)**Decision-Making Factors Survey**

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Which mode of communication does the child use?

- ☐ oral only  
☐ oral + sign language  
☐ sign alone  
☐ cued speech

Does your child have any conditions other than hearing loss that may affect her/his development or education?

- ☐ yes  
☐ no

Does your child have (a) hearing aid/hearing aids?

- ☐ Yes  
☐ No

Does your child have a cochlear implant?

- ☐ Yes  
☐ No

Does your child have a second cochlear implant?

- ☐ Yes  
☐ No

**Family and Professional Involvement and Support**

**Who has been involved** as you made decisions about your child's communication modality?

---

	Not applicable	Very involved	Involved	Somewhat involved	Uninvolved
mother	NA	4	3	2	1
father	NA	4	3	2	1
grandparents	NA	4	3	2	1
other relatives	NA	4	3	2	1
friends	NA	4	3	2	1
other parents of deaf children	NA	4	3	2	1
clergy	NA	4	3	2	1
otolaryngologist	NA	4	3	2	1
family doctor	NA	4	3	2	1
teacher	NA	4	3	2	1
counselor	NA	4	3	2	1
speech-language pathologist	NA	4	3	2	1
deaf educator/special educator	NA	4	3	2	1
audiologist	NA	4	3	2	1
school principal	NA	4	3	2	1

---

**Overall, who has been most or least supportive** as you made decisions about your child's communication modality?

---

	Not applicable	Very supportive	Supportive	Somewhat supportive	Unsupportive
mother	NA	4	3	2	1
father	NA	4	3	2	1
grandparents	NA	4	3	2	1
other relatives	NA	4	3	2	1
friends	NA	4	3	2	1
other parents of deaf children	NA	4	3	2	1
clergy	NA	4	3	2	1
otolaryngologist	NA	4	3	2	1
family doctor	NA	4	3	2	1
teacher	NA	4	3	2	1
counselor	NA	4	3	2	1
speech-language pathologist	NA	4	3	2	1
deaf educator/special educator	NA	4	3	2	1
audiologist	NA	4	3	2	1
school principal	NA	4	3	2	1

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## Appendix (p. 3 of 4)

### Decision-Making Factors Survey

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#### Accessibility to Information and Services

Do you agree or disagree with the following statements?

	Strongly agree	Agree	Somewhat disagree	Disagree
I had to work hard at obtaining information about options for my child.	4	3	2	1
I wish professional would have provided me with more options for my child.	4	3	2	1

---

Which of the factors listed below most influenced the decisions you have made about your child's communication modality?

	Very important	Important	Somewhat important	Unimportant
services provided in a school setting	4	3	2	1
cost of services	4	3	2	1
availability of services close to home	4	3	2	1

---

#### Bilingual Variables

Did you decide to raise your child orally bilingual?

\_\_\_ yes (indicate languages) \_\_\_\_\_

\_\_\_ no

Does your child **understand** two oral languages?

\_\_\_ yes

\_\_\_ no

Does your child **understand and speak** two oral languages?

\_\_\_ yes

\_\_\_ no

Is your child able **to communicate effectively** in two oral languages?

\_\_\_ yes

\_\_\_ no

Did anyone **discourage you, or raise concerns about raising your child orally bilingual?**

\_\_\_ Yes

\_\_\_ No

If yes, indicate who discouraged you:

\_\_\_ spouse or partner

\_\_\_ child's grandparents

\_\_\_ other relatives

\_\_\_ friends

\_\_\_ other parents of children with hearing loss

\_\_\_ clergy

\_\_\_ otolaryngologist

\_\_\_ family physician

\_\_\_ teacher

\_\_\_ counselor

\_\_\_ speech-language pathologist

\_\_\_ deaf educator/special educator

\_\_\_ school principal

\_\_\_ audiologist

\_\_\_ psychologists

\_\_\_ other

Did anyone **encourage you to raise you child orally bilingual?**

\_\_\_ Yes

\_\_\_ No

---

**Appendix** (p. 4 of 4)**Decision-Making Factors Survey**

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If yes, indicate who encouraged you:

- |  |   |
|--|---|
| <input type="checkbox"/> spouse or partner                           | <input type="checkbox"/> teacher                        |
| <input type="checkbox"/> child's grandparents                        | <input type="checkbox"/> counselor                      |
| <input type="checkbox"/> other relatives                             | <input type="checkbox"/> speech-language pathologist    |
| <input type="checkbox"/> friends                                     | <input type="checkbox"/> deaf educator/special educator |
| <input type="checkbox"/> other parents of children with hearing loss | <input type="checkbox"/> school principal               |
| <input type="checkbox"/> clergy                                      | <input type="checkbox"/> audiologist                    |
| <input type="checkbox"/> otolaryngologist                            | <input type="checkbox"/> psychologists                  |
| <input type="checkbox"/> family physician                            | <input type="checkbox"/> other                          |

**Beliefs About Bilingualism**

Do you agree or disagree with the following statements?

	Strongly agree	Agree	Somewhat disagree	Disagree
Children receive a better education when they learn in two languages.	4	3	2	1
It is natural for children to speak a second language.	4	3	2	1
Children who are bilingual will have better job opportunities as adults.	4	3	2	1

**Beliefs About Raising DHH Children Bilingually**

Do you agree or disagree with the following statements?

	Strongly agree	Agree	Somewhat disagree	Disagree
Children who are deaf or hard of hearing have the capacity to develop skills in two oral languages.	4	3	2	1
Children who are deaf or hard of hearing will be confused by being exposed to two oral languages	4	3	2	1
Learning two oral languages is too great of a challenge for children who are deaf hard of hearing.	4	3	2	1

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